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ABSTRACT

This review examines and summarizes 16 research studies examining the writing self-efficacy beliefs of 6th to 10th grade students. In the majority of the studies, self-efficacy was found to play a primary role in predicting student writing performance. Students with learning disabilities were found to over-estimate their ability to complete specific writing tasks. Several studies found gender differences, with boys rating their confidence higher than girls, although actual performance did not differ. Grade-level differences in perceived efficacy for writing were found in some studies, but not in others. Most studies emphasized that those working with young adolescents need to be aware of the importance of self-efficacy and other motivational beliefs in conjunction with academic functioning. Difficulties with specificity of self-efficacy measures, and with correspondence between measure and critical task were found in several studies. The article concludes with suggestions for future self-efficacy research. (Contains 58 references and 2 tables of data. Appendixes contain a summary of reviewed studies and a chart indicating specificity of self-efficacy measures and correspondence between self-efficacy measure and critical task.) (Author/RS)

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Writing in early adolescence: A review of the role of self-efficacy beliefs

Abstract

This review examines and summarizes 16 research studies examining the writing self-efficacy beliefs of 6th to 10th grade students. In the majority of the studies, self-efficacy was found to play a primary role in predicting student writing performance. Students with learning disabilities were found to over-estimate their ability to complete specific writing tasks. Several studies found gender differences, with boys rating their confidence higher than girls, although actual performance did not differ. Grade-level differences in perceived efficacy for writing were found in some studies, but not in others. Most studies emphasized that those working with young adolescents need to be aware of the importance of self-efficacy and other motivational beliefs in conjunction with academic functioning. Difficulties with specificity of self-efficacy measures, and with correspondence between measure and criterial task were found in several studies. The article concludes with suggestions for future self-efficacy research.

Key words: *self-efficacy, adolescence, writing, composition*

Writing in early adolescence: A review of the role of self-efficacy beliefs

"He just sits there and does nothing—he's just not motivated" is a comment frequently heard in the classrooms of early adolescents, often in conjunction with tasks involving writing. According to Bandura, "If self-efficacy is lacking, people tend to behave ineffectually, even though they know what to do" (1986, p. 425). The self-efficacy component of social cognitive theory describes how self-perceptions of the capability to perform specific tasks strongly influence one's engagement in and successful completion of a task. This is no truer than in the domain of written expression, where the demands of the task are many—spelling, punctuation, grammar, word choice, and organization—and the need for belief in one's own capabilities to monitor and execute these individual skills—often simultaneously—is correspondingly high. Learning to write can be viewed as a transition from conversation to composition (Bereiter & Scardamalia, 1987) which begins at school entry and develops through the formal schooling years and beyond. Motivational beliefs also change and develop through the school years, with perceptions of ability typically optimistic in the early school years and declining thereafter (Anderman & Maehr, 1994; Shell, Colvin & Bruning, 1995). It has been found that children begin to accurately differentiate between performance, effort, and ability around the age of 10 (Nicholls, 1978; Stipek, 1981; Stipek, 1998), and that children who doubt their competence begin to show less perseverance for difficult tasks at around age 10 (Licht, 1992; Nicholls, 1978). Writing tasks begin to assume greater importance at around the same time, with students in the middle school years being asked to demonstrate their knowledge and creativity largely through writing (Hooper et al., 1993). Difficulties with written language become more common and apparent in this time period: Hooper and his colleagues (1993) found more than half of some samples of middle-school children experiencing significant difficulties with writing. Learning to write is a daunting task, and a lack of confidence to carry out that task will inhibit academic success.

Self-efficacy as a motivational factor has been much studied in the period following Bandura's 1977 seminal publication "*Self-efficacy: Toward a Unifying Theory*

of Behavioral Change." Efficacy beliefs are context-specific evaluations of the capability to successfully complete a task, and are formed through mastery experiences, vicarious experiences (observation of others), social/verbal persuasion, and interpretations of physiological and emotional states (Bandura, 1995). These beliefs contribute to prediction of academic outcomes beyond the contributions offered by ability, previous attainments, knowledge and skill alone. Students need more than ability and skills in order to perform successfully; they also need the sense of efficacy to use them well and to regulate their learning (Bandura, 1993). Self-efficacy beliefs differ from related constructs such as competence beliefs and self-concept in that they are more task-specific, and are established through normative criteria rather than through comparison with others (Zimmerman, 1995). For example, scales measuring writing self-concept or writing competence might ask "Are you a good writer (compared to others in your class)?", whereas a scale measuring writing self-efficacy might contain the item "How confident are you in writing a paragraph on this subject?". Efficacy beliefs play a part in managing motivation in expectancy-value theory, which asserts that individuals evaluate courses of behavior for their value or potential to produce certain outcomes. An expectancy-value item might ask "How useful is it to write a good paragraph?". Shell, Murphy, and Bruning (1989) found that adding a self-efficacy component significantly increased the predictiveness of expectancy-value constructs. Self-efficacy beliefs, then, consist of the degree to which individuals believe they can control their level of performance and their environment (Bandura, 1996).

In spite of Bandura's (1997, p.6) recent caution that self-efficacy beliefs "may vary across realms of activity, different levels of task demands within a given activity domain, and under different situational circumstances" much of the self-efficacy research conducted has been too-global in scope (Pajares, 1996b). Although there has been much research examining the self-efficacy of college undergraduates (e.g., Campillo & Pool, 1999; McCarthy, Meier, & Rinderer, 1985; Meier, McCarthy, & Schmeck, 1984; Pajares & Johnson, 1994; Shell, Murphy, & Bruning, 1989; Zimmerman & Bandura, 1994) and of younger children (e.g., Pajares , Miller, & Johnson, 1999; Pajares & Valiante, 1997;

Schunk & Swartz, 1993) there has been less work charting the changes in the self-efficacy of early adolescents (Anderman & Maehr, 1994; also see "Search Procedure" below) and findings from "different situational circumstances" may not hold true for early-adolescent students. In the place of research investigating global self-beliefs, Pajares (1996a) calls for further studies of self-efficacy investigating specific settings: "More information is also required about how students at various ages, academic levels, or grades use the diverse sources of efficacy information in developing self-efficacy beliefs" (p. 567). Self-efficacy is conceptualized as a context-specific belief, and research exploring this motivational belief is needed in a variety of specific contexts.

In middle- and high-schools, student motivation is a much discussed factor among teachers and parents, with incomplete or poorly completed writing tasks often providing the evidence of a student's lack of engagement. Motivational issues in early adolescence "have a degree of uniqueness and certainly a special sense of urgency about them" (Anderman & Maehr, 1994, p. 287) due to increasing academic stakes, age-related declines in motivation, and motivational shifts resulting from making the transition out of elementary school. Achievement-motivation research which focuses on this developmental period may help inform the practice of those working with early-adolescent students as well as increase understanding of the developmental path of self-efficacy beliefs.

This review examines and summarizes self-efficacy-related research on writing in one particular developmental period—early adolescence. Choosing studies which specifically focused on one developmental period was thought to heed Bandura's warning that self-efficacy beliefs may vary across different situational circumstances—this review attempts to explain the role of self-efficacy in a specific developmental period and in a specific domain. Another purpose of the review is to examine the selected research for differences in self-efficacy beliefs associated with grade-level, gender, and disability. This article also investigates this research with an eye toward establishing commonalities in possible interventions to increase adolescents' perceived efficacy. The results of some

of the research conducted with early adolescents have pointed the way to increasing the self-efficacy of capable, but inefficacious students. Finally, the critical analysis from this review identifies elements to be considered in future studies, and helps shape future self-efficacy research. Before reviewing the literature, a synopsis is given highlighting issues in motivation and self-efficacy beliefs during adolescence followed by a brief look at the interplay of motivation and writing tasks.

Adolescence and motivation

Given that one source of efficacy expectations is vicarious experience derived from social comparison (Bandura, 1977, 1986), and given that early adolescence is a period when once overly-optimistic children experience a burgeoning awareness of peers and their relative abilities (Stipek, 1998), it is not surprising that, in general, achievement motivation is prone to decline in early adolescence (Eccles, Midgely, & Adler, 1984; Wigfield, Eccles, MacIver, Reuman, & Midgley, 1991). Two factors are often cited in explaining declines in motivation in the middle-school years: "organismic" (individual) and "contextual" (environmental) (Wigfield & Eccles 1994). Organismic factors include the increasing realism of students' self-evaluations as they progress through elementary school. Whereas Stipek (1998) relates that when asked, most kindergarten children claim to be among the brightest in their class; by early adolescence, external evaluations provide learners with more objective and realistic judgments of their own abilities. Perceptions of ability, too, change with age, with early adolescents viewing ability as a relatively stable trait (Licht & Kistner, 1986; Nicholls, 1984) whereas younger children typically intermingle ability, effort, and achievement, with little understanding of the links between them (Nicholls, 1978; Schunk, 1991).

Contextual factors—including school environment and classroom tasks—also affect motivation in early adolescence. Students making the transition from elementary school to middle or junior high school, or from middle school to high school, are potentially faced with more stringent grading practices, less well-established teacher-pupil relationships, and less opportunity to participate in decision-making exactly at the

time when they desire increased independence and self-determination (Anderman & Maehr, 1994). For less able or less prepared students making the transition to middle school, other school factors may adversely influence self-efficacy beliefs, including a rigid sequence of instruction, ability groupings, and academically competitive environments (Bandura, 1986). The impact of low self-efficacy on adolescent behaviour is significant: junior high school students with low perceived academic and self-regulatory self-efficacy were found to display more physical and verbal aggression, and emotional irascibility than children with high self-efficacy, whereas for younger children, the effects of low perceived efficacy in these areas were minimal (Bandura, 1993). Adolescents, who experience the physical changes associated with puberty, as well as psychological changes in the search for personal identity, are also prone to changes in self-perceptions of their efficacy to complete specific tasks. Self-efficacy beliefs play an important role in determining how well adolescents weather the transitions associated with this developmental period. The physical and social changes, along with the environmental transitions associated with adolescence bring about a loss of personal control which results in a reduction in the confidence needed to manage challenging tasks (Bandura, 1997). Certain academic skills, like writing, become increasingly important in this period; a student's confidence to organize and manage writing tasks takes on greater importance than in earlier periods.

Writing and motivation

Young writers need to develop beliefs both in the importance of writing and in their own ability to communicate effectively through this challenging medium. In the early adolescent years, writing becomes more complex and demanding, requiring more planning, revising, and self-regulation of the involved processes (Graham & Harris, 2000). The perceived usefulness of writing becomes apparent in late elementary school, and increases into middle and high school (Shell, Murphy & Bruning, 1989). Understanding how motivational factors interact with writing is crucial in understanding young writers and their development . Four conditions to enhance motivation are proposed by Bruning and Horn (2000). Teachers need to (a) nurture functional beliefs

about writing, (b) foster student engagement through authentic writing goals and contexts, (c) provide a supportive context for writing, and (d) create a positive emotional environment for writing. It is in this last sphere that many students experience difficulties. Anxiety for writing tasks is common (Bruning & Horn), and the physiological reactions of stress to writing interferes with confidence in completing tasks (Bandura, 1986). Self-efficacy beliefs about writing are formed in part by emotional and physiological reaction to the task, but also by past experience, observation of others, and verbal persuasion (Bandura). Although writing is a crucial skill that is often poorly acquired, research into problems with writing seems to lag behind research examining other academic areas (Hooper et al., 1993), with research including both writing and motivation also poorly represented in the literature (Bruning & Horn). Because writing increases in importance during adolescence, and because self-beliefs and motivation appear to undergo developmental changes, investigating the role that self-efficacy plays in this domain and in this time-period is instructive and potentially useful in shaping instruction.

Method

Criteria for Inclusion

Grade-level

The purpose of the review was to investigate writing self-efficacy beliefs in early adolescence, a developmental period, as will be seen, that is not well covered by the literature. Early adolescence is a time of change: the onset of puberty brings about emotional and social changes (Wigfield et al., 1991); at around age 10 (beginning of grade 6), motivation, control and attribution beliefs begin to change (e.g., Stipek, 1981); school setting changes are often made from elementary to middle school, or to junior high school; and writing skills take on greater importance (Hooper et al., 1993). The early adolescent years for this article are defined as the transition years from childhood to later adolescence, and here are defined as the 6th grade through to the 10th grade. Because school organization differs from district to district, and from state to state (and between

countries), it was thought most appropriate to include studies involving grade 6 students, who are often enrolled in middle schools, through to grade 10 students, who in some jurisdictions are enrolled in junior high schools. For example, the studies conducted by Wong and her associates (1996, 1997) involved grade 9 and grade 10 students from a junior high school, a transitional level before the senior high school years. For other-structured high schools enrolling students from grade 9 to grade 12, the first two years can be seen as a "transitional period," which is often seen as a hallmark of early adolescence. Students in grade 6 are typically aged 10 or 11 at the beginning of the year, and are beginning to undergo important changes in motivational beliefs and attitudes regarding effort and persistence (Licht, 1992; Nicholls, 1978; Stipek, 1981; Stipek, 1998).

Writing Task

Studies included in this review included some measure of writing, or writing aptitude, or attitude toward writing. Studies that measured perceived self-efficacy and language-based academic achievement in adolescence, but not specifically writing (e.g., Pintrich, Roeser, & De Groot, 1994; Zimmerman, Bandura, & Martinez-Pons, 1992) were not included. Studies that measured self-efficacy and spelling (e.g., Rankin, Bruning, & Timme, 1994) in early adolescence were not included in this review for two reasons. Although spelling is a component of writing, the isolated task of spelling was thought to demand different levels of motivation than writing composition (i.e., with regards to the elements of task-choice, level of engagement, and persistence—as discussed by Bandura [1986] among others). Also, spelling is often presented as an isolated task—for example, spelling tests in elementary or middle school—which demands different cognitive skills than written discourse.

Self-efficacy measures

Studies that met the above criteria and used the term "self-efficacy beliefs" to describe students' confidence in their writing competence, and provided a measurement of these beliefs, were included in this study. Although there is a body of research in the related area of competence beliefs (e.g., Wigfield & Eccles, 1994), and the distinction

between the two is often blurred in the way they are measured, these two constructs are conceptually different (Pajares, 1996a) and only studies incorporating the term "self-efficacy" were included in this review.

Search Procedure

To locate pertinent literature, the following procedure was followed. First, the time period searched was restricted to the period following Bandura's 1977 publication of "*Self-efficacy: Toward a unifying theory of behavioral change*," which was thought to signal the advent of self-efficacy research. Next, two on-line databases—PsycINFO and Educational Resources Information Center (ERIC)—were searched using the following key words: *self-efficacy*, and *writing or composition*. A total of 173 articles were found as a result of this procedure. In terms of age or grade-levels discovered in the initial article search, approximately 40% of the studies investigated the relevant topics with college students, 31% involved younger children (i.e., younger than sixth grade), 23% included students in this review's target grades, 4% included only senior high school level students, and 2% included adults of unspecified age. Research involving college undergraduates was also over-represented in the 36 studies included in a meta-analysis conducted by Multon, Brown, and Lent (1991). In that study, only 3 studies (8%) examined the self-efficacy and academic achievement of adolescents, with the majority of studies focused on younger children (61%) and college students (29%).

The abstracts of the resultant articles were scanned, and those experimental or correlational articles which included a writing task, a self-efficacy measure, and students between the 6th and the 10th grade were included in this review. Articles with abstracts that did not clearly define the grade level, the measures used, or the criterial task were scanned for relevance to this review, and were included if they met the above criteria. Reference lists from the articles found were hand-searched for further relevant research. Studies which included students from the target grades as well as outside the range were included in the study (e.g., Sawyer, Graham, & Harris, 1992; Shell et al., 1995). When

results in these studies were given by grade level, the target-grade results were the focus in the "Outcomes" section of the Summary (Appendix). The results from outside the target grades did provide useful cross-sectional information on differences in perceived self-efficacy. From the initial 173 articles uncovered in the search of the databases, and from the hand-search of the relevant articles, a total of 16 articles met the inclusion criteria and were included in this review.

Summary and critical analysis

To help facilitate understanding of the content and nature of the 16 studies in the review, the following components were summarized and charted in columns 1 to 8 of Appendix A: 1) author and date published, 2) number of students, 3) grade, 4) type of school, 5) inclusion of LD students, 6) performance or writing measure used, 7) self-efficacy measure used, and 8) outcomes related to self-efficacy.

Of the 16 articles included, 13 were published in the decade 1990 - 1999, with the remaining three published in the last 3 years of the previous decade. Publication venues varied somewhat with 13 of the studies published in refereed journals, and 3 studies presented as papers at national conferences. Of the 16 studies selected for this review, only one study (Evans, 1991) used qualitative research methods in the assessment of self-efficacy—classroom observations and structured interviews—but also included quantitative data analysis of the writing measure.

Participants

As can be seen from column 2 of Appendix A, the number of participants included in each study ranged from 3 in the case study conducted by Graham and Harris (1989b), to 742 in the Pajares and Valiante (1999) study which included most of the students from one large middle school. The median sample size was 65.5. Six of the samples included participants from outside of this review's target grades, that is grades 6 to 10. In that case, the numbers of "target" participants is listed in column 2 of the

Appendix along with the total number of participants. The school settings (column 4) varied a good deal, with most of the possible permutations included: middle school, junior high school, high school, and elementary school. In five of the studies, school setting was not listed (e.g., "subjects were 606 children... from a midwestern school system."). Gender differences in self-efficacy perceptions were included in 5 of the studies, while the remaining 11 studies did not include gender as a variable in their analysis of the data. Most (11) of the studies included a multi-grade sample of students, although only 5 of the 11 samples explored self-efficacy differences among grade-levels.

Research investigating the *writing* of students with learning disabilities (LD) has been limited (in contrast to studies investigating reading) but illuminating: LD students have been shown to exhibit ineffective strategy use, minimal output, insubstantial revising processes, and weak basic skills, all in contrast to paradoxically high confidence in writing capabilities (Graham, Harris, MacArthur, & Schwartz, 1991). Seven of the studies (see Appendix A, column 5) focused on the writing self-efficacy beliefs of early adolescent students with learning disabilities (Graham & Harris, 1989a; Graham & Harris, 1989b; Graham, Schwartz, & MacArthur, 1993; Page-Voth & Graham, 1999; Sawyer, Graham, & Harris, 1992, Wong, Butler, Ficzere, & Kuperis, 1996; Wong, Butler, Ficzere, & Kuperis, 1997). The two studies conducted by Wong et al. included both LD students and students who were "low achievers." One study included three achievement levels based on standardized writing assessment (Shell et al., 1995), and one study included "special education" and "at-risk" students (Anderman, 1992). Two studies excluded "special education" students (Pajares & Johnson, 1996; Pajares & Valiante, 1999) whereas the study by Spaulding (1995) excluded "non-mainstreamed" special education students. In the remaining four studies, the inclusion of students with learning disabilities was not discussed. The students in the samples included in this review are similar in ability make-up to the students in the samples used in the meta-analytical reviews of self-efficacy studies conducted by Multon, Brown, and Lent (1991). In the present review the percentage of studies involving LD or low-achieving students was

43% (7 of 16) whereas in the Multon et al. review, the percentage of studies involving "low achieving" participants was 42%.

The inclusion in this review of results of studies including students with learning disabilities may affect grade-level findings, and raises questions about which factors contribute to self-efficacy beliefs: grade/developmental level, or a learning disability? The inclusion of non-disabled control groups or varying achievement levels in some of the studies (e.g., Graham, Schwartz, & MacArthur, 1993; Sawyer, Graham, & Harris, 1992; Shell et al., 1995) provides some data about differences between normally-achieving students and those with writing disabilities or difficulties. As discussed below, the difference in perceptions of self-efficacy appears to be one of *calibration* of beliefs: achievement level or presence of LD did not seem to affect perceived self-efficacy levels, even though criterial performance was lower than for other groups.

Performance measure

As listed in column 6 of Appendix A, most (11 of 16, or 69%) of the studies used essay- or story-writing as the criterial task to measure student writing. The nature of the assigned writing varied from study to study, with some variation in length, method of writing (paper-and-pencil, or word processor), time allowed for completion, topics assigned, and scoring. For example, in the intervention study conducted by Wong et al. (1996), students were trained to plan, write, and revise opinion essays with topics such as "Should junior high school students be allowed to wear Walkmans in their classrooms?", and "Should high school students have a dress code?". The students wrote on word processors for three 50 minute classes to complete each of their six essays, with support offered through the writing and revising stages. Two research assistants scored each of the essays for "clarity and cogency". Graham and Harris (1989a) asked students to write made up stories with the instructions "Look at this picture and write a story to go with it. Use everything that you have learned about writing stories to help you" (p. 356). The compositions from this study (designed to examine the effects of self-instructional strategy training and explicit self-regulation procedures on composition) were scored by

both the instructor and a second examiner for holistic quality and specific story grammar elements. Pajares and Johnson (1996) asked students to write a 30-minute essay entitled "My idea of a perfect day." The essays were scored "holistically" by two raters using a six-point scale. In the study conducted by Shell et al. (1995) the writing measure consisted of scores from a previously-administered standardized test (measuring Language Mechanics, Language Expression, and Spelling) combined with a researcher-assigned essay. Pintrich and De Groot (1990) measured writing performance through the use of student performance on actual classroom tasks and assignments over one semester. They collected semester grades for three broad academic areas, one of which was "essays and reports." Zimmerman and Kitsantas (1999) used a sentence-rewriting/combining task to measure writing skill in which the students were presented with "revision problems" consisting of a number of kernel sentences to be combined. Two of the studies used questionnaires to investigate writing aptitude and attitudes towards composition. Anderman (1992) used an (unspecified) writing attitudinal measure as well as overall achievement test scores from the CTBS as performance measures. In the study of writing knowledge conducted by Graham et al. (1993), eight open-ended questions were posed to the participants in an interview setting. The questions were designed to probe the students' declarative, procedural, and conditional knowledge about writing. The range of writing tasks used as performance measures in these studies helps build understanding of the *generalizability* of self-efficacy beliefs across multiple conditions (Bandura, 1997).

Self-efficacy measure

As with the performance measures, the measures used to assess self-efficacy beliefs varied from study to study, with the majority (15 of 16, or 94%) of the studies assessing self-efficacy through a self-report scale, with the remaining study (Evans, 1991) using a series of structured interviews to measure indirectly a number of motivational and attitudinal factors, including perceived self-efficacy. Column 7 of Appendix A shows that seven of the articles included all items measuring self-efficacy either in the text or as a table or appendix. A number of articles—six—included descriptions of the scales or examples. Two of the articles did not include or define the measure used to assess self-

efficacy perceptions. Of the 15 studies using self-efficacy measures, the number of items included in the instrument ranged from 3 to 10 items, with a mean of 8.4 items.

The scales designed to measure self-efficacy beliefs varied in content depending on the criterial task measured. For example, Graham and Harris (1989a) included 10 items assessing efficacy beliefs for writing a story. Nine of the items were introduced with the stem "Can you write a story that," and were completed with phrases such as "tells about the main character's feelings; clearly tells about the setting; has a good beginning" (p. 356). Their final item was "Can you write a good, creative (made up) story?" (p. 356). The scale used by Pajares and Johnson (1996) consisted of eight items measuring students' beliefs about their composition, grammar, usage, and mechanical skills. Among other items, students were asked to rate their confidence to "correctly punctuate a one-page passage" and "organize sentences into a paragraph so as to clearly express a theme" (p. 166). Some of the self-efficacy measures were less fine-grained, and assessed broader skills. The nine-item scale used by Pintrich and DeGroot (1990) assessed efficacy beliefs in the broader domain of performance in English class, e.g., "I expect to do very well in this class", "I am sure that I can do an excellent job on the problems and tasks assigned for this class" and "I think I will receive a good grade in this class" (p.35). Anderman (1992) likewise measured student beliefs more broadly on the four-item scale which included "Even if the work in English is hard, I can learn it" (p. 30), and "No matter how hard I try, there is some English class work I'll never understand" (p. 30). However, these domain-specific measures may be less predictive than task-specific measures because students do not have a specific activity in mind when rating their efficacy (Pajares, 1997). Also, broad domains, like "English class" are comprised of numerous subdomains or skills, including reading, writing, and test-taking, and students may vary in their perceptions of efficacy for each skill.

Specificity and correspondence

Self-efficacy measurements have been adversely affected by a lack of specificity of measurement, along with weak correspondence between self-efficacy measure and the

performance task (Bandura, 1986; Pajares, 1996a). Specificity of the self-efficacy measure is crucial because perceptions of self-efficacy are task- and domain-specific (Bandura, 1986). A close congruence between the self-efficacy measure and criterial task is essential to maximize predictive power of self-efficacy beliefs and to secure confidence that the measure is accurately reflecting the performance task.

The 16 studies included in this review varied both in terms of specificity of the self-efficacy measure and the correspondence between the measure and the criterial task. Most of the studies were rated as "High" in specificity (10 of 16, or 62.5%) and "High" in correspondence (10 of 16, or 62.5%). Columns 2-4 in Appendix B (column 1 supplies author and date) show how each of the studies was globally assessed for (column 2) degree of specificity of the self-efficacy measure (Low , Moderate, or High); (column 3) the degree to which the actual measure was described ("Included" [in totality], "Described", or "Not defined"); and (column 4) correspondence between self-efficacy measure and performance task (Low, Moderate, or High). Although most of the studies used a performance task of one or a series of essays or stories, some of the studies employed broader domain tasks such as reading and writing on a standardized test (Anderman, 1992), or a semester's worth of writing assignments (Pintrich & De Groot, 1990). The possible degree of specificity was constrained by the nature of the criterial task being measured; in other words, the broader the domain being measured, the lower the possible level of specificity of self-efficacy measure. For example, Pintrich and DeGroot (1990) measured students' performance on "essays and reports" (as well as in-class seatwork, and quizzes and tests) through one semester. As noted above and in Appendix B, the items on the scale measuring efficacy beliefs were less specific (rated "Moderate"), since the authors assessed beliefs about broader performance in the class. In this case, correspondence was assessed as "High", because the (broad) self-efficacy measure reasonably reflected the (broad) criterial task. Also, the specificity of some of the self-efficacy measures was restricted by their "omnibus" nature (see Pajares, 1996a, 1996b). That is, the efficacy scales consisted of two sections measuring, for example, confidence in the skills associated with writing, and confidence to complete writing tasks

(Bruning et al., 1987; Shell et al., 1995), or writing efficacy along with social comparison items (Graham et al., 1993; Wong et al., 1997). Several studies used self-efficacy items specifically generated from the criterial task and designed to closely reflect the task. For example, the study conducted by Graham and Harris (1989a) used a measure assessing perceived efficacy to write a "made-up story", when the criterial task was writing a "made-up story." Only two of the studies did not include either the complete self-efficacy measure or a description of the self-efficacy measure used.

Outcomes

Outcomes related to self-efficacy and writing are summarized in column 8 of Appendix A. It should be noted that students' perceived self-efficacy was not necessarily the focus of each of these studies, and often was just one of the motivational variables assessed. The outcomes reported in this section are those specifically related to students' writing self-efficacy beliefs; other findings from these studies are not included in this review. In several of the studies (Graham & Harris, 1989a; Graham & Harris, 1989b; Graham et al., 1993; Sawyer et al., 1992; Wong et al., 1996; Wong et al. 1997; Zimmerman & Kitsantas, 1999) the research question regarding self-efficacy was "How does self-efficacy (and students' writing) change with the treatment?", rather than "What is the role of self-efficacy in predicting writing achievement?". Of the motivational variables assessed, perceived self-efficacy was usually found to be the strongest or among the strongest predictors of writing competence (Anderman, 1992; Bruning et al., 1987; Pajares & Johnson, 1996; Pajares & Valiante, 1999; Pintrich & De Groot, 1990; Spaulding, 1995) providing support for Bandura's social cognitive theory regarding the primacy of the role of self-efficacy in predicting performance.

Gender

Gender differences in self-efficacy perceptions were not analyzed in the majority of the studies. Of the 16 studies, 5 analyzed gender differences in perceived efficacy for writing skills. In this group of studies, two of the studies—Pajares and Johnson (1996)

and Pintrich and De Groot (1990)—found significant differences in self-efficacy according to gender. Although neither of the studies found *performance* differences on the writing task between girls and boys, both studies found boys rating their own *confidence* to complete the criterial task higher than did the girls. A third study, by Pajares and Valiante (1999) found no significant writing self-efficacy differences between the sexes, but did find that when asked to rate writing skill-level, both boys and girls rated the girls as better writers. In other words, whereas confidence for a specific writing task was not different, perceived competence for writing as a domain was in fact higher for girls. Pajares notes that other researchers (e.g., Noddings, 1996) have claimed that girls measure their own confidence for academic tasks with a different metric than do boys. The remaining two studies found no gender differences for perceived self-efficacy.

Grade level differences

Several (11) of the studies included multi-grade samples, with five of the studies assessing differences in perceived self-efficacy by grade level. Whereas Anderman (1992) found sixth grade students in middle school displaying a higher level of self-efficacy for reading and writing than seventh grade students, Pajares and Valiante (1999) found the reverse to be true, with self-efficacy beliefs in middle-school children declining from sixth to seventh grade, but rebounding in eighth grade. Shell et al. (1995) found seventh grade students to have lower writing task self-efficacy than tenth-graders. Graham et al. (1993) found no difference in writing self-efficacy beliefs between younger (fourth- and fifth-grade) and older (seventh- and eighth-grade) students. The study conducted by Bruning et al. (1987) found perceived self-efficacy to be the most important predictor of achievement for grades 7 and 10, but in younger children (grade 4), self-efficacy beliefs were less well-established and did not predict achievement as well. Taken as a whole, the results regarding grade-level and self-efficacy are unclear—there are grade-level differences, but the results are difficult to define into trends. One confounding obstacle when comparing these results is the accuracy and validity of the self-efficacy measure, and the reliability of the results when specificity or correspondence are not optimal. Another factor which complicates the interpretation of grade-level results is school

context. A grade 8 student, for example, could be enrolled as a "senior" middle school student (composed of grades 6 to 8); or a beginning junior high or high school student. Overall self-confidence and perceived efficacy for specific academic tasks like writing may differ at least partially due to the school context.

Self-efficacy beliefs and learning disabilities

Seven of the studies in the review specifically investigated the perceived self-efficacy of students with learning disabilities, and one study (Shell et al., 1995) examined self-efficacy beliefs of students with differing achievement-levels. In three of the studies, LD students were found to have surprisingly high self-efficacy beliefs about writing. Graham and Harris (1989a) remarked on the unexpectedly high self-efficacy levels of the LD students before the treatment—an overestimation of composition ability, in the view of the authors. Perceived self-efficacy was increased by both treatment conditions: self-instructional strategy training with and without explicit self-regulation procedures. The same authors in another study (1989b) again found high self-efficacy ratings for writing at pre-test and concluded that "This finding adds to a growing body of literature that indicates that learning disabled students have difficulty accurately assessing or predicting their performance capabilities" (p. 212). In a similar fashion, Sawyer et al. (1992) commented on the inaccurately high pre-test self-efficacy ratings of the LD students in their study. In comparing the self-efficacy for composition tasks between LD and normally-achieving students, Graham et al. (1993) found no difference in perceived self-efficacy in spite of the fact that normally-achieving students displayed a more mature knowledge base about writing. By way of contrast, in their study comparing high and low achievers in ratings of self-efficacy and writing, Shell et al. (1995) found high achievers displayed higher task and skills self-efficacy for writing than did the average achievers, which were again stronger than the self-efficacy ratings of the low achievers. In other words, although students with LD may overestimate their efficacy to complete a writing task, the results from Shell et al. suggest that "non-learning disabled" low achievers may more accurately calibrate their confidence level to complete a task with the demands of the task in question.

Page-Voth and Graham (1999) found little change after treatment from the "neutral" pre-test self-efficacy levels of the students with learning disabilities in their study. In the study conducted by Wong et al. (1996) on revising opinion essays, the LD students increased in self-efficacy with the intervention, although attitudes toward writing remained negative. Conversely, their 1997 study involving compare-and-contrast essays showed no student improvement in self-efficacy, a result ascribed by the authors to the increased difficulty of working with this genre of writing.

Including studies in this review that investigate self-efficacy beliefs in students with learning disabilities raises some questions about generalizing to non-disabled populations. Also, the nature of the differences between learning disabled and low-achieving students further complicates the issue. Definitional issues in the field of LD have been much- addressed (e.g., Klassen, in-press; Siegel, 1992; Stanovich, 1991) and are not extensively addressed in this paper. It may be the case that there are no significant qualitative differences between LD and low-achieving students with regards to motivational issues. This belief appears to be shared by some of the authors cited in this review: Page-Voth and Graham (1999) used the term "students with writing and learning problems" in the title of their article addressing self-efficacy beliefs of LD students; Wong et al. (1996, 1997) included low achievers in their samples of LD students and made no distinction between the two groups. It may be the case that *all* students with writing difficulties display similar patterns of self-efficacy beliefs; however, as discussed above, there is some suggestion that students with LD possess inflated perceptions of efficacy for writing in comparison with other low-achieving students.

Further complicating the issue of using both learning disabled and low achieving students in these samples is the practice of including a variety of different types of disability under the label "learning disability." For example, two of the studies which included students with learning disabilities did not involve LD students with writing

disabilities or "dysgraphia", but rather reading or undefined academic deficits, in conjunction with measured intelligence in the average range. The remainder of the studies (Graham & Harris, 1989a; Graham & Harris, 1989b; Graham, Schwartz, & MacArthur, 1993; Page-Voth & Graham, 1999; Sawyer, Graham, & Harris, 1992) consistently employed the criteria of identification as LD by the school system, average IQ scores, significant deficits in academic achievement (area not specified), followed by diagnosis of "significant composition problems" by teachers. All of the studies which included LD students used some form of IQ-achievement discrepancy as the basis of the identification process, but the degree of discrepancy was inconsistent (as certainly reflects the state of LD identification throughout North America). For example, the severity of the academic deficits forming the basis of the disability included the following: one standard deviation below the mean, two years behind peers, three years behind peers, and "significant delays" in a specific academic area. An individual study assessing writing beliefs of LD students would quite likely have included students with reading disabilities/dyslexia, math disabilities, as well as writing disabilities; furthermore, the severity of the disability would have varied from study to study. It should be noted that these inconsistencies in LD definition are not necessarily critical: most of the studies were designed to measure the effectiveness of specific interventions for children with writing difficulties—consistency in the definitions used to classify them as *learning disabled* may not be required for that purpose.

Remediation suggestions

Table 1 presents a summary of self-efficacy related suggestions for remediation. The clear consensus from the studies in this review is that schools and teachers need to work on increasing student self-efficacy as well as on improving skills and competence. Or, as succinctly put by Pintrich and De Groot (1990), students need both the "will" and the "skill" to encounter success with academics. Shell et al. (1995) suggest that what is needed is an emphasis on fostering motivational beliefs in spite of low achievement. But hollow self-efficacy beliefs will not likely increase performance. Indeed, several articles in this review discuss inflated self-efficacy beliefs, and their unrelatedness to actual

performance. Bandura (1986) advises that optimal efficacy judgments slightly overestimate what actually can be accomplished. The current research suggests that some students overestimate their efficacy to a much greater degree, and that gross overestimates—as seen in the case of some students with learning disabilities—do not serve to improve students' performance. Focussing on increasing self-efficacy beliefs in isolation may prove to be folly, but the research reviewed here does emphasize that educators need to acknowledge the important role that confidence beliefs play when remediation of writing is the goal.

Table 1 about here

Several of the treatment conditions resulted in improved performance as well as increased judgments of self-efficacy. Although the goal of such intervention research is not strictly to increase self-efficacy perceptions, it is worthwhile to examine the treatments for commonalities which may provide increases in performance and help students experience more confidence to complete subsequent tasks. Graham and Harris (1989b) provided LD students with a series of self-directed prompts to (a) consider their writing audience, (b) develop a plan of what they intended to say, (c) evaluate content, and (d) continue the use of the strategies during actual writing. The students were given explicit strategy modeling and training, with the result that students' writing showed significant improvement. Spaulding (1995) made a concrete suggestion for increasing writing achievement in students with low self-efficacy. She found that having the students focus on the teacher's psychological presence in writing (i.e., establishing the teacher as writing audience) increased the performance of students with low perceived efficacy. Wong and her colleagues (1996, 1997) taught adolescent students with learning difficulties strategies to plan, write, and revise opinion and compare-and-contrast essays on the word processor. Essay quality—defined as clarity, aptness, and organization—improved significantly in both cases. Although strategy instruction resulted in increases both in students' writing performance and perceived self-efficacy in some of the studies (Graham & Harris, 1989a, 1989b; Wong et al., 1996), the results from other studies

showed improved writing, but no change in efficacy judgments (Page-Voth & Graham, 1999; Sawyer et al., 1992; Wong et al., 1997). The tendency of students with learning disabilities to misconstrue their capabilities may be at the root of this misjudgment in some of the studies; it is also possible that relatively brief interventions improved specific writing skills, but not more deeply-rooted beliefs about writing. With continued improved performance, one would also predict a rise in associated efficacy beliefs, because "successes build a robust belief in one's personal efficacy" (Bandura, 1997, p.80).

Suggestions for future research

Table 2 presents a summary of key proposals made for further investigation of self-efficacy beliefs and writing. Three main trends can be deduced from the research. One of the key suggestions, applying to students with learning disabilities and to students who are low achievers, is the intriguing phenomenon of overly-optimistic self-efficacy beliefs and the sources of self-efficacy beliefs (Graham & Harris, 1989a; Pajares & Johnson, 1996; Sawyer et al., 1992). Whereas Bandura (1986) suggests that self-efficacy beliefs are formed through experience (both personal and vicarious), verbal persuasion, and analysis of physiological state, some students with learning difficulties appear to form their self-efficacy beliefs inaccurately and from different sources than normally-achieving students. Next, a call is made for investigation of the relationship of self-efficacy beliefs and academic performance in a wider variety of settings and with varied populations. The current studies identified a need for research investigating "younger and maturing children" (Sawyer et al.), gender differences (Pajares & Valiante, 1999) and the interaction of socioeconomic status and self-efficacy (Pajares & Johnson).

Table 2 about here

Finally, there is a perceived need for a wider variety of research methods used to assess perceived efficacy. Graham et al. (1993) see the need for multiple-methods assessment while Pintrich and De Groot (1990) call for "ecologically valid" classroom

research. Perhaps most importantly, Pajares and Valiante (1999) call for longitudinal research investigating the development of self-efficacy beliefs. Although some cross-sectional research was identified in this review, no work was discovered assessing developmental changes in efficacy beliefs over time in a single cohort of students.

Discussion

A difficulty which pervades a review of research is the varying degrees of confidence that can be placed in the reliability of the results of the different studies included. When analyzing and summarizing results from diverse studies, some acknowledgment must be made of the methodological difficulties influencing outcomes. And although a meta-analysis might assess and include ratings and weightings of the quality of the studies analyzed, a qualitative review of the research usually takes a broader approach, and assesses more than methodological merit. In this review, one of the methodological trouble-spots discovered is that of *specificity and correspondence* of measures, and an attempt was made to evaluate the degree of fidelity to theoretical principles. Bandura states "It is no more informative to speak of self-efficacy in global terms than to speak of nonspecific social behavior (1986, p. 411)." Even though students' perception of self-efficacy was not the central variable assessed in many of these studies, and possibly received only moderate attention when the studies were designed, the outcomes of some of the research are called into question when the self-efficacy measure is carelessly constructed.

Regarding specificity of measures, several of the studies used "omnibus" self-efficacy measures which included two components—confidence to complete specific writing tasks as well as confidence to perform specific writing skills. Pajares (1996a) questions the need for composite scores when a discrete academic task is being measured. If subscales and composite scores of efficacy are used it is imperative that the scores are calculated and reported separately, which was not the case in all studies in this review. Specificity is more difficult when the criterial task is relatively broad, such as student

grades on writing tasks throughout a semester. In such cases, although self-efficacy measure items can only be moderately specific, the correspondence between the measure and the criterial task can still be high.

Correspondence between measure and performance task was generally high in the studies in this review, especially in cases when the self-efficacy measure was designed from the specific tasks used as the performance measure. The correspondence was lower even when the items were highly specific— "How confident are you to write a letter to a friend?"—when the performance task was related, but different, such as writing a short essay. At least one of the studies (Page-Voth & Graham, 1999) acknowledged that self-efficacy effects may have been influenced by the less-than-optimal correspondence between measure and task (although, in fact, the correspondence in that study was as good as most of the studies in this review). As a rule of thumb, researchers will find that the predictive power of self-efficacy measures increases if efficacy measures are constructed directly from the criterial task for each study, rather than borrowed from previously-conducted studies.

Another, and perhaps more insidious pitfall identified in these studies lies in the nature of the definition of self-efficacy as given in the self-efficacy measure. As stated earlier, the distinction between self-efficacy and other motivational beliefs is often theoretically subtle and consequently blurred in practice. Is self-efficacy actually the belief being assessed in the studies in this review? Consider that the definition of self-efficacy typically addresses an individual's *confidence* to obtain a specific result or perform a certain task. Sawyer et al. (1992) comment on the fact that "although self-efficacy and the metacognitive ability to assess one's own capabilities differ conceptually, operational assessment of the two is uncomfortably similar" (p. 350). In this review, several studies included items that seem closer to ability or achievement self-perceptions than self-efficacy beliefs. For example, items such as "No matter how hard I try, there is some English class work I'll never understand", or "When my class is asked to write a story, mine is one of the best" (which was found in several of the studies), appear more

closely related to ability self-perception or competence beliefs than perceived self-efficacy. Including items which are not clearly measuring self-efficacy confuses interpretation of the outcomes of the study, and weakens the validity and the confidence one can place in the results. Another rule of thumb derived from this review might be to always include the term "confidence" or a closely-related term in the construction of self-efficacy items.

Learning disabilities and inflated self-efficacy beliefs

As previously discussed, several of the studies found that like younger children, early adolescents with learning disabilities overestimate their efficacy for writing tasks (e.g., Graham & Harris, 1989b; Sawyer et al., 1992). It has been previously hypothesized that LD students overestimate their efficacy to complete academic tasks due to comprehension deficiencies or faulty self-knowledge (Graham & Harris, 1989a). In contrast, there is some indication that low-achieving students not identified as LD more accurately calibrate their level of confidence to complete writing tasks (Shell et al., 1995). This difference in development of self-efficacy beliefs may, in fact, be associated with the operational definition of *learning disability*, and with the nature of the support that typically results from a student gaining this label. Although it has been shown in this review that there is a degree of inconsistency in the nature and severity of the academic deficit at the heart of the disability (i.e., reading or writing disability; size of discrepancy, or severity of achievement gap behind peers), there was consistency in the use of the level of measured IQ (i.e., "average") in defining the LD groups. It may be that the students' self-efficacy beliefs are generated from their level of cognitive functioning (which, in most operational definitions of LD, is average or higher) rather than from their level of academic functioning. Or, it is possible that students identified as LD are more encouraged academically because of their "disability": they receive more extensive support and more social persuasion (through additional school-based services) than "generic" low achievers, and thus perceive their efficacy for writing as higher than is warranted when they write unsupported. In any case, the question remains as to exactly how extreme overestimates of ability impair one's level of actual functioning. Optimistic

efficacy beliefs protect a person from losing faith in his or her abilities when difficulties are encountered (Bandura, 1997); groundless and extreme overestimates of ability in students with LD may not serve the same beneficial function. Further investigation of differences in self-efficacy beliefs between students with learning disabilities and students with "garden-variety" low achievement may help understanding of the development of self-efficacy beliefs.

Suggestions for future research

Much of the research examining the writing self-efficacy beliefs of early adolescents has been helpful in furthering our understanding of a specific domain and a specific population. The following proposals may prove to be beneficial in designing future studies:

- Include the actual self-efficacy measure in article.
- Use tighter and cleaner measures: ensure high specificity and close correspondence of self-efficacy measure and criterial task.
- Construct efficacy measures directly from the criterial task for each study to increase the predictive power of self-efficacy.
- Ensure that the self-efficacy measure is *valid*. Some measures purporting to measure self-efficacy appear to measure related constructs such as personal competence.
- Longitudinal, or minimally, cross-sectional studies are needed investigating developmental changes in self-efficacy.
- Clearly define special populations (such as students with learning disabilities) and as much as possible, ensure consistency of definition.
- Further research is needed investigating the reasons for LD students' inflated self-efficacy beliefs.

In summary, the findings from this review suggest that self-efficacy beliefs play an important role in predicting writing achievement in early adolescence. It has been seen that although research investigating writing efficacy beliefs commonly involves post-secondary and elementary populations, less research has been conducted on the beliefs of

early adolescents. In terms of methodological soundness, most of the studies displayed high degrees of specificity of the self-efficacy measure, and a high degree of correspondence of measure with the criterial task. However, some of the self-efficacy measures were adversely affected by the inclusion of other self-beliefs, incorrectly labeled as self-efficacy. The predictiveness and stability of the measure suffer when this is the case. Student characteristics affected measured efficacy beliefs. Although not often included as a variable, gender appeared to influence efficacy beliefs, but not performance, with boys rating their writing confidence higher than girls. Age differences and developmental changes in efficacy beliefs were unclear; a call for further cross-sectional and longitudinal research in this area was made. Students with learning disabilities typically overestimated their ability to complete writing tasks; however, students identified as "low achievers" displayed better calibration of beliefs and performance, and appeared to more realistically rate their efficacy. The question was raised as to the implications of grossly overestimated efficacy beliefs.

Adolescence is an important transitional period, with physical, social and academic challenges resulting in a sense of loss of personal control for many young people. Belief in one's efficacy to perform academically is often depressed in this period, and writing tasks, which demand the mustering together of a host of motivational beliefs and organizational skills, often suffers. Research which explores self-beliefs in this context builds understanding of the mechanisms which influence performance. Also, self-efficacy research points to interventions which may boost both academic performance and the corresponding self-beliefs.

Table 1

Self-efficacy related suggestions for remediation

Author (date)	Remediation proposals

Anderman (1992)	"Educators should place a much greater emphasis on the relationships between motivational and affective factors with strategy use" (p. 9).
Bruning, Shell, & Murphy (1987)	"Children must have positive experiences with reading and writing activities and they must understand that they can be successful in these activities through their own efforts" (p. 17).
Evans, 1991	"Educators should place a much greater emphasis on the relationships between motivational and affective factors with strategy use" (p. 9).
Pajares & Johnson (1996)	Remediating writing difficulties will be difficult if students' perceived self-efficacy is not taken into account. Also, teachers should take care to prevent the development of students' negative perceptions.
Pajares & Valiante (1999)	Schools need to work on increasing students' competence and confidence.
Pintrich & DeGroot (1990)	Both the "will and the skill" need to be integrated into classroom learning.
Shell, Colvin, & Bruning (1995)	More emphasis is needed on fostering positive motivational beliefs, even when achievement is low.
Spaulding (1995)	Students who lack confidence in their writing abilities may perform better if they perceive the teacher's psychological presence.
Wong, Butler, Ficzere, & Kuperis (1997)	There is a need to attend to students' perceived self-efficacy during teaching.

Table 2

Self-efficacy related areas for future research

Author (date)	Areas for future research
Evans, 1991	"Educators should place a much greater emphasis on the relationships between motivational and affective factors with strategy use" (p. 9).
Graham & Harris (1989a)	Research needed into how pre-task beliefs affect learning in "problem learners."
Graham, Schwartz, & MacArthur (1993)	Multiple-methods assessment, and specific methods designed for assessing children's self-efficacy are needed.
Page-Voth & Graham (1999)	Research needed examining the effects of goal-setting procedures on self-efficacy.
Pajares & Johnson (1996)	A need exists for the examination of sources of efficacy information. Also, the variable of socioeconomic status (SES) should be investigated.
Pajares & Valiante (1999)	Longitudinal research needed. Further investigations into gender differences in academic self-belief.
Pintrich & DeGroot (1990)	Self-report instruments need to be augmented with other measures. Also, ecologically valid classroom research needed.
Sawyer, Graham, & Harris (1992)	Why do LD students overestimate their ability? Further research needed into academic self-efficacy with younger and maturing children with age-specific methods. The operationalization of self-efficacy and other constructs needs to be more clearly defined.
Shell, Colvin, & Bruning (1995)	Research needed into how self-efficacy beliefs relate to persistence and effort.

Appendix A

Summary of reviewed studies

1 Author (date)	2 # of stds	3 Grade	4 School setting	5 LD students	6 Performance measure	7 Self-efficacy measure	Self-efficacy
Anderman (1992)	678	6 and 7	Middle school	Mixed: (includes "Special Education" and "At-risk" students.	Self-report questionnaire of cognitive strategy use and attitude towards writing. Also achievement test scores and school grades.	Self-report 4-item scale; items centering on broad domain of English class	Grade 7 stud efficacious t students. Self-efficacy predictor of
Bruning, Shell, & Murphy (1987)	606 (438 in gr.7 &10)	(4), 7, and 10	Not given	Not listed.	Two-paragraph essay scored holistically.	Two scales, assessing S.E. for writing task and writing skills.	Perceived S. significant at was most sig predictor at
Evans, 1991	1 class	8	Not given	Not listed.	In-class narrative writing sample.	Student interviews.	While percei increased wit actual perfor not—S.E. be independent performance.
Graham & Harris (1989a)	33 (17 in gr.6)	(5) and 6	Elementar y school	All students LD.	Story-writing assessed for "story grammar elements" and quality.	10-item scale measuring S.E. to write a "made-up story."	Strategy trai increased per while explici training did S.E. LD stud overestimate
Graham & Harris (1989b)	3	6	Elementar y school	All students LD.	Story- and essay-writing measured for quality, grammar and length.	S.E. scale assessing perceived ability to write and revise writing.	S.E. increase with treatme three subject was high, an abilities.
Graham, Schwartz, & MacArthur (1993)	68 (47 gr.7 & 8)	(4, 5), 7, and 8	Not given	Included (non-LD control group).	Interview assessing knowledge of writing.	10 S.E. items measuring perceived S.E. for writing domain.	No significa perceived S. or LD/norma students.
Page-Voth & Graham (1999)	30	7 and 8	Not given	All students LD.	3 essays scored for functional elements, length and quality.	6-item S.E. scale assessing confidence for writing essays	Perceived S. affected by i experimental setting, or go strategy instr

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Pajares & Johnson (1996)	181	9	High school	LD students not included in sample.	30-minute essay with holistic scoring system linked to S.E. scale	Writing Skills Self-Efficacy scale (8 items) measuring confidence to perform certain writing skills.	Hispanic std. than non-His Girls' S.E. lo but performa
Pajares & Valiante (1999)	742	6, 7, and 8	Middle school	"Special Education" students not included.	30-minute essay	Writing Skills Self-Efficacy scale (10 items) measuring confidence to perform specific writing skills.	S.E. beliefs grade 6 to 7, in grade 8. N differences f
Pintrich & DeGroot (1990)	173	7	Junior high school	Not given	Performance on in-class seat-work and homework, quizzes, and essays.	Self-efficacy scale (9 items) measuring confidence in performance of class work.	S.E. higher i high in S.E. r cognitive an learning strat S.E. level pr achievement.
Sawyer, Graham, & Harris (1992)	33 (20 gr.6)	(5) and 6	Elementary school	Included (non-LD control group).	Written stories assessed for grammar and quality	10-item scale measuring S.E. to write a "made-up story."	Treatment (s instruction) significantly efficacy.
Shell, Colvin, & Bruning (1995)	364 (259 gr. 7 and 10)	(4), 7, and 10	Not given	Included three achiev. levels.	Standardized achievement test, and 2-paragraph essay.	Two 5-point scales, assessing S.E. for writing task and writing skills.	7th-grade std task S.E. tha stds. High ac displayed hi skills S.E. fo
Spaulding (1995)	185	7	Middle school	Excluded "non-mainstreamed special education students."	Essay with assigned topic judged for length and quality.	S.E. scale assessing linguistic competence, linked to specific standards of English class.	Perceived sel positively rel task engage low-efficacy engaged in ta but not for re (significant i between S.E.
Wong, Butler, Ficzere, & Kuperis (1996)	38	8 and 9	Junior high	Mixed: included LD and "low achievers."	Opinion-essay writing	Questionnaire including S.E. items.	S.E. increase treatment, bu attitude to wr low.
Wong, Butler, Ficzere, & Kuperis (1997)	21	9 and 10	Junior high	Mixed: included LD and "low achievers."	Series of essays written on computer.	10-item S.E. questionnaire.	While writin metacognitio S.E. did not treatment.
Zimmerman & Kitsantas (1999)	84	9, 10 (and 11)	High school	Not listed.	Sentence combining task	Task-specific measure assessing perceived capability to complete criterial task.	S.E. was hig of writing pe Stds. who shi process to ou displayed hi

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Appendix B

Specificity of self-efficacy measure and correspondence between self-efficacy measure and criterial task

1 **Author (date)**	2 **Specificity of self-efficacy measure**	3 **SE measure in the study: Described, Included, Not defined**	4 **Correspondence between self-efficacy measu and criterial task: Low, moderate, or high**
Anderman (1992)	**Moderate** specificity: items centering on broad domain of English class	Included, e.g., "Even if the work in English is hard, I can learn it."	**Low**: "Since reading and writing are integral pa of all academic work for early adolescents, we examined the effects of motivation toward reading and writing on this overall measure (CTBS) of academic performance" (p. 7).
Bruning, Shell, & Murphy (1987)	**Moderate** specificity: two scales, assessing S.E. for a variety of writing tasks and writing skills.	Described: "One subscale contained general reading or writing tasks of varying difficulty and the other consisted of component skills involved in reading or writing" (p. 7).	**Moderate**: Task involved essay writing. while measure assessed confidence for a variety of writing tasks.
Evans, 1991	Student interviews.	Not defined.	Not known.
Graham & Harris (1989a)	**High** specificity: measures S.E. to write a "made-up story."	Included: "subjects were read 10 items probing self-efficacy for writing a 'made-up story'" (p. 356).	**High**: Criterial task involved writing a "made-u story."
Graham & Harris (1989b)	**High** specificity: measure assesses perceived ability to write and revise writing.	Described in depth: "The questions measured the students' perceived ability to write an essay that had a 'good' beginning..." (p. 206).	**High**: Criterial task involved writing essays, which were scored according to elements assess in self-efficacy measure.
Graham, Schwartz, & MacArthur (1993)	**High** specificity: measures perceived S.E. for writing domain as well as social comparison.	Included: e.g., "When writing a paper it is easy for me to get ideas." and "When my class is asked to write a ____, mine is one of the best" (p. 241).	**Moderate**: Criterial task was an assessment of knowledge of revising skills
Page-Voth & Graham (1999)	**High** specificity: assesses confidence for writing essays	Included: Six items beginning "When I write an essay..." (p. 233).	**High**: Criterial task was writing three essays.
Pajares & Johnson (1996)	**High** specificity: measures confidence to perform certain writing skills.	Described: "consists of 8 items that ask students to rate their confidence that they can perform certain writing skills (e.g., 'correctly punctuate a one page passage'" (p. 166).	**High**: "Criteria for scoring (essay) were the sam as those on which students were asked to assess their writing efficacy" (p. 166).

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Pajares & Valiante (1999)	**High** specificity: measures confidence to perform specific writing skills.	Described: "consisted of 10 items asking students how sure they were that they could perform specific writing skills" (p. 392).	**High**: Criterial task—a 30-minute essay—reflected items in the described self-efficacy scale.
Pintrich & DeGroot (1990)	**Moderate** specificity: measures confidence in performance of class work.	Described: "consisted of nine items regarding perceived competence and confidence in performance of class work (e.g., 'I expect to do very well in this class')" (p. 35).	**High**: Writing performance task—essays and reports—were derived from a variety of assignments over the semester.
Sawyer, Graham, & Harris (1992)	**High** specificity: measures S.E. to write a "made-up story."	Included: "10 items for probing judgment of one's capability to write a 'made-up story'" (p. 343).	**High**: Criterial task was a series of written stori
Shell, Colvin, & Bruning (1995)	**High** specificity: Two scales, assessing S.E. for a variety of writing tasks and writing skills.	Described: Task items, e.g., "write a letter to a friend, write a 1-page summary of a book you read" (p. 388). Skill items, e.g., "correctly punctuate a sentence" (p. 388).	**Moderate**: Task involved essay writing, while measure assessed confidence for congruent skill but also for other tasks.
Spaulding (1995)	**High** specificity: S.E. scale assessing linguistic competence, linked to specific standards of English class.	Described: "The students were asked to indicate how confident they were that they could complete successfully a variety of school-based tasks requiring some degree of linguistic competence" (p. 212).	**High:** Criterial measure was level of writing-tas engagement.
Wong, Butler, Ficzere, & Kuperis (1996)	Unknown specificity. Questionnaire including S.E. items.	Not defined: "Trainees filled out the questionnaires on attitudes toward writing, self-efficacy and metacognition" (p. 204).	Not known.
Wong, Butler, Ficzere, & Kuperis (1997)	**Moderate** specificity: 7 specific efficacy items and 3 social comparison items	Included: Two sections, the first posing questions such as "When writing a paper, it is easy... ." The second, "When my class is asked to write a report, mine is one of the best" (p. 5).	**High** correspondence: criterial task involved writing a series of papers.
Zimmerman & Kitsantas (1999)	**High** specificity: Task-specific measure assessing perceived capability to complete criterial task.	Explained: "Self-efficacy involved participants' perceived capability to solve each of the three writing revision problems" (p. 244).	**High:** Self-efficacy measure constructed to refl task: "SE involved participants' perceived capability to solve each of the three writing revision problems described above."

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